agri-fax Alberta AGRICULTURE

88-05342/

Agdex 112/33-19
RV November, 1987

VARIETAL DESCRIPTION OF CONWAY SPRING WHEAT

Licensed: April 28, 1986, No. 2666

Origin and Breeding:

Conway hard red spring wheat, tested as S79407 and BW 569, was developed at the University of Saskatchewan, Saskatoon, Saskatchewan from the cross Chris/Siete Cerros//Neepawa/Opal. The final cross was made in 1972. The F2 to F5 generations were grown in spaced plant nurseries and handled by a modified mass selection procedure. Head rows were grown in the F6 generation and each selected row harvested in bulk. These F6 derived lines were evaluated for yield and quality in the F7 to F10 generations. Selection criteria in early generations were plant height, maturity and attitude, and stem rust resistance. In later generations, additional criteria were yield, straw strength, the various CWRS quality parameters and disease resistance. Breeder seed is composed of 167 lines which were derived from single F11 head selections.

Varietal characteristics:

Plant characteristics

Kind: common
Coleoptile color: green
Juvenile growth: erect
Leaves: medium green with slight waxy bloom; glabrous leaf sheath and blade
Flag leaf: medium green; medium length and width; glabrous sheath, blade and auricle margins; white auricles; waxy sheath; intermediate attitude
Straw: hollow internodes; 3 nodes; slightly waxy upper internode; glabrous upper node; little or no anthocyanin coloration; medium thick; straight culm neck
Heading: similar to Neepawa
Tillers: intermediate number
Plant height: medium; shorter than Columbus
Lodging resistance: very good
Resistance to shattering: good
Sprouting tendency: medium
Disease reaction: resistant to stem rust (*Puccinia graminis tritici*); moderately resistant to loose smut (*Ustilago tritici*) and common root rot (*Helminthosporium sativum and Fusarium spp.*); moderately susceptible to leaf rust (*Puccina tricina*) and bunt (*Tilletia caries and T. foetida*).

Spike characteristics

Shape: strap or oblong; medium length; medium density
Attitude: erect
Color: green with slight waxy bloom five days after heading; white at maturity
Awns: short; apically awnletted
Spikelets: intermediate number; intermediate number of seeds per spikelet; no supernumerary spikelets
Glumes: narrow to medium width; medium length; white; glabrous; square to rounded shoulder of medium width; narrow and pointed beak; slight basal folds on lower glume.

Kernel characteristics

Color: medium red
Texture: hard
Shape: medium sized; medium length and width; ovate
Cheek: rounded
Brush: medium sized; medium hair length; collar present
Germ: medium sized; oval
Crease: narrow width; shallow
Protein content: high

Performance:

Conway is adapted to all areas of the western prairies and has performed best in Brown and Dark Brown soil zones of Alberta and Saskatchewan. Its good yield-maturity relationship indicates good adaptation to northern areas. It is higher yielding than Neepawa and similar in yield to Columbus. It matures earlier than Columbus and Neepawa. Conway is similar to Neepawa in height, lodging resistance and disease resistance, but is freer threshing. Conway also has good bread making quality.

RV 1987 11 3M

Copies of this and related publications may be obtained from the Print Media Branch, Alberta Agriculture, 7000 - 113 Street, Edmonton T6H 5T6 or Alberta Agriculture's District Offices.

Due to its poor leaf rust resistance, Conway should not be grown in the eastern prairies.

Acceptable offtypes: 0.001% plants up to 1 head taller than neighboring plants

Unacceptable offtypes: Tall, late speltoid plants

Useful distinguishing characteristics: pronounced waxy bloom on sheath of flag leaf; medium length of the flag leaf; strap or oblong spike; narrow to medium width of lower glume; square to rounded shoulder of lower glume; rounded kernel cheek; narrow width and shallow depth of kernel crease.

Maintenance of breeder seed: University of Saskatchewan, Saskatoon, Saskatchewan

Canadian distributor: Alberta Wheat Pool

Recommended by: Expert Committees on Grain Breeding and Grain Quality

Table 1:

Disease Reaction of Conway and Check Varieties in Western Bread Wheat Cooperative Tests, 1982-1984.

Variety	Year	Stem Rust	Leaf Rust	Loose Smut	Bunt	Common Root Rot*
Neepawa	1982	VR**	40MS	MR	R	25
Columbus		10MR-MS	VR	S	R	40
Canuck		20R-MR	80S	MS	R	42
Leader		VR	3MS	S	R	43
Conway		VR	50S	MR	R	25
Neepawa	1983	10R	50M	--	I	12
Columbus		10R	5R	--	R	22
Canuck		30R	80S	MS	I	21
Leader		10R	3M	MR	R	21
Conway		10R	50M	MR	I	18
Neepawa	1984	10R	50M	--	I	31
Columbus		20R-MR	1R	--	R	35
Canuck		70S	80S	--	I	43
Leader		10VR	0TR, 20M	--	I	55
Conway		10VR	40M	MR	S	34

* Disease index rating

** Type of reactions: VR = very resistant; R = Resistant; MR = moderately resistant; I = intermediate resistance; M = intermediate to MR and MS; and MS = moderately susceptible; S = Susceptible

Table 2:

Agronomic Performance of Conway and Check Varieties in Western Bread Wheat Cooperative Tests, 1982-1984.

Variety	Yield (kg/ha)	Maturity (days)	Height (cm)	Lodging (1-9)*	Test Weight (kg/hL)	1000 kernel wgt. (g)
Station-years	25	17	23	13	26	26
Neepawa	27.1	100	82	1.5	79.0	30.0
Columbus	27.9	103	90	1.3	80.0	31.2
Canuck	26.0	102	92	2.2	81.2	32.0
Leader	25.9	100	79	1.5	80.1	29.5
Conway	28.8	99	82	1.4	78.9	29.1

* 1 = no lodging

EXPERIMENTAL DATA

Table 3:

Yield ('00 kg/ha) of Conway and Check Varieties in Western Bread Wheat Cooperative Tests, 1982-1984.

		Brown soil zone				Dark brown soil zone									Overall
Year	Variety	SC*	STVA	KIND	Mean	REG	WAT	SASK	SCOTT	ROSE	ACME	LETH	Mean	ELL**	Mean
1982	Neepawa	41.4	35.7	--	38.6	29.4	27.7	39.5	37.5	28.5	27.2	30.9	31.5	--	33.1
	Columbus	41.2	35.0	--	38.1	31.3	30.1	40.6	38.2	26.1	30.7	29.0	32.3	--	33.6
	Canuck	38.1	35.0	--	36.6	25.9	26.3	36.2	32.1	27.5	27.0	30.3	29.3	--	30.9
	Leader	38.7	32.2	--	35.5	27.6	25.8	36.7	33.2	25.7	26.6	30.9	29.5	--	30.8
	Conway	41.9	36.4	--	39.2	0.5	28.3	38.0	37.5	25.8	26.0	32.9	31.3	--	33.0
1983	Neepawa	33.7	--	17.1	25.4	25.3	30.4	30.4	25.5	--	22.1	26.8	26.8	--	26.4
	Columbus	31.1	--	22.1	26.6	27.5	29.0	31.7	30.4	--	26.2	25.6	28.4	--	27.9
	Canuck	25.5	--	20.7	23.1	27.9	26.7	30.3	31.3	--	23.6	23.5	27.2	--	26.2
	Leader	30.3	--	15.5	22.9	23.8	26.8	31.4	26.3	--	22.6	25.0	26.0	--	25.2
	Conway	33.0	--	19.3	26.2	27.4	28.1	31.4	29.0	--	24.8	27.4	28.0	--	27.6
1984	Neepawa	15.2	24.2	--	19.7	17.6	--	24.6	14.7	--	25.0	14.8	16.1	33.1	21.2
	Columbus	15.2	17.8	--	16.5	18.9	--	23.0	16.8	--	26.4	13.0	16.4	39.5	21.4
	Canuck	14.5	15.9	--	15.2	15.6	--	22.9	16.0	--	26.0	15.2	16.0	36.6	20.3
	Leader	15.5	18.9	--	17.2	17.9	--	22.5	14.3	--	26.5	14.9	16.0	37.9	21.0
	Conway	16.6	24.9	--	20.8	17.9	--	26.9	15.4	--	25.1	14.4	16.6	33.2	21.8

* Locations: Swift Current, Stewart Valley, Kindersley, Regina, Watrous, Saskatoon, & Scott, Rosetown, Acme, Ellerslie, Lethbridge.
** Black and Grey soil zone

Table 4:

Quality Ratings of Conway and Check Varieties, Western Bread Wheat Cooperative Tests, 1983-1984.

Year	Varieties	Wheat Protein* (%)	Wheat Ash (%)	Wheat Falling no. (Seconds)	Flour Yield (%)**	Flour Ash (%)**	Wet Gluten (%)**	Flour Amylograph (B. units)**
1983	Neepawa	14.9	1.65	430	75.4	0.44	42.5	725
	Columbus	15.4	1.52	430	75.6	0.46	44.9	910
	Canuck	14.8	1.64	400	76.4	0.45	40.3	670
	Leader	15.4	1.48	395	76.9	0.45	44.5	875
	Conway	14.9	1.56	410	75.4	0.44	42.1	725
1984	Neepawa	15.1	1.35	420	73.9	0.38	42.2	720
	Columbus	14.8	1.42	430	76.3	0.42	41.9	900
	Canuck	14.7	1.40	400	75.3	0.38	39.4	655
	Leader	15.0	1.41	390	76.4	0.41	40.4	880
	Conway	14.9	1.39	410	73.8	0.38	39.8	745

* N x 5.7; 13-5% moisture basis

** Flour milled on Allis-Chalmers mill, at the Grain Research Laboratory

For Further Information
Contact:
Bill Witbeck
Field Crops Branch
Lacombe